

WELCOME!

Your decision to purchase a ToneShaper was a good one! Your new toy should give you lots of tone tweaking enjoyment, and will prove to be a valuable tool in getting the tone you're looking for from your guitar. Please read over these instructions to become acquainted with your new unit, and keep them handy for future reference.

INSTALLATION

We've included everything you'll need. The first step is to remove the control plate from your guitar, and then remove the old switch and pots from your control plate. You'll also remove the existing jack. Disconnect the pickup leads and any ground wires from the old electronics and strip 1/4" of insulation from the ends of the wires to prepare them for connection to the ToneShaper.

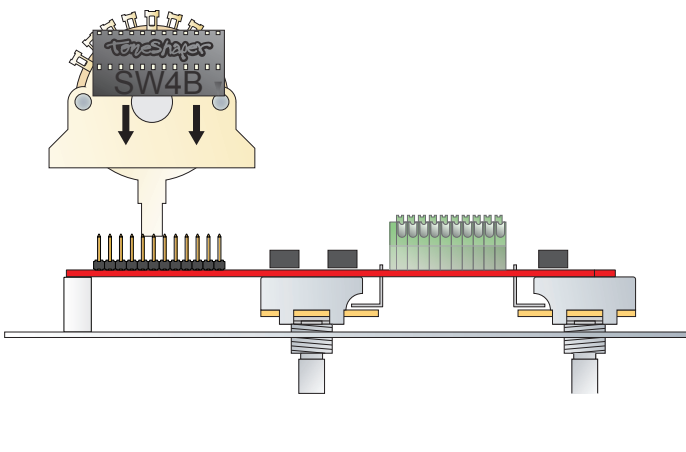
The ToneShaper is designed to fit perfectly on a Fender control plate, but other brands of plates may require modification if their hole spacing varies from Fender's.

Put the included internal-tooth lockwashers (star washers) over the ToneShaper's two pot shafts, then insert the two pot shafts into the control plate's holes. If you find that the holes are too small, then they're probably sized for metric pots and need to be enlarged to 3/8". The flat washers go on the outside of the plate.

The switch will be connected next. The ToneShaper's function set is determined by the switch that's plugged into it, but all switches will connect to the board in the same way. It's easiest to let the switch actuator (the lever, or blade) poke through the slot in the control plate while you plug the plastic connector onto the circuit board. Even though we've attached a standoff to help support the circuit board, keep in mind that the portion where the switch attaches is very thin, so while it's fairly strong, you can break it if you're not careful. It's best to support the underside of the board with a finger while you slide the connector on.

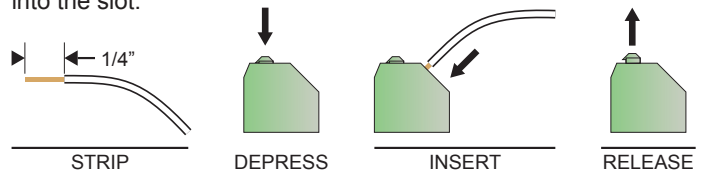
With the actuator poking through the slot in the plate, line up the connector (the black thing attached to the switch in the following illustration) with the pins on the circuit board and push them down as far as they'll go. The illustration shows a 4-way switch, but all switches will attach in the same way.

Finally, attach the switch to the plate with the two 6-32 screws provided. Again, if your guitar is imported then the screw holes in your plate may be sized for metric screws, and may need to be enlarged slightly to accommodate the SAE screws.



The pickup leads and the grounds that you prepared earlier will now be connected to the terminal block on the board as shown below. Simply depress the plunger as shown, insert the stripped section of the wire, and release the plunger. To ensure a solid connection, verify that the spring contact down inside the terminal block is in direct contact with the wire, not the wire's insulation.

If your pickups have cloth wire (sometimes called "push back" wire), the cloth insulation will fit perfectly into the slots on the terminal block. The key is to strip the wire, rather than push back the insulation. If you push back the insulation it will bunch up, increasing its diameter and preventing it from fitting down into the slot.



CONNECTIONS

The circuit board is labelled just in front of the terminal block, and we'll refer to these labels. Please note that the color codes we've listed below apply to Seymour Duncan's standard product line. If you're using some other pickup brand(s), then you'll need to research their color codes in order to connect your pickups properly.

The wires will be connected to the terminal block as follows:

GND	Misc ground (string ground, shielding, etc.)
GND	Misc ground (string ground, shielding, etc.)
JACK GND	Jack ground (black)
JACK OUT	Jack hot (white)
BRIDGE-	Bridge pickup ground (black)
BRIDGE+	Bridge pickup hot (yellow)
HB GND	Not used
HB S/L	Not used
NECK-	Neck pickup ground (black)
NECK+	Neck pickup hot (white)

If you're using a covered humbucker with 4-conductor leads, it will have a bare "drain" wire. This will be connected to one of the ground points (GND). Take care that the wire doesn't inadvertently touch anything that it shouldn't, by covering it with heat-shrink tubing or tape.

The term "series link" refers to the two wires that are used to join the coils of a humbucker together in series. You'll only have this if your humbucker uses 3-conductor or 4-conductor wire. If your humbucker uses single-conductor braided wire, where you see a metal braid around the outside of the wire, then you won't be able to use it with the ToneShaper with either a 4-way or 5-way switch, though you may use it with a 3-way switch, in which case you would connect it like a normal Tele neck pickup.

ToneShaper[™]
FLIP THE SWITCH

Tone Shapers, Inc.
5976 20th Street
Unit 267
Vero Beach, FL 32966

DRAWN	DATE	TITLE
George Ellison	8/21/11	ToneShaper 2 for Telecaster® Switch - SW3E
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The final connections will be the grounds. If you're using a vintage-style bridge pickup with a metal plate on the bottom, it's most likely that this plate provides the string ground, and so no further grounding of the bridge will be required. However, if you don't have a bridge pickup with this type of construction, then you'll probably have a wire coming into the control cavity from the bridge, and this will be connected to one of the ground points marked GND. If you have a wire that is screwed to the cavity shielding (certain Fender models - see illustration below), then this will also be connected to any of these ground points.



Fender's Shield Ground Wire

Now you should be ready to physically install the control plate on the guitar. Feed the jack into the cavity so that it reaches down to the ferrule and secure it with the nut and washers provided (lock washer inside, flat washer outside). Then gently press the control plate down to the body and screw it into place.

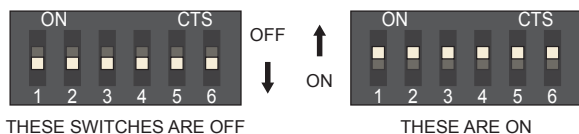
Good work! Now go enjoy yourself a nice sarsaparilla.

HOW THE THING WORKS

Okay, let's put this baby through its paces.

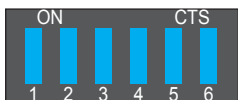
The ToneShaper has been designed to be really simple to use. Once installed, you can make changes to its configuration by simply removing the control plate and flipping it over, then manipulating some mini switches. The mini switches that are used are large enough for many people to move with their fingernails, but we've also included a dandy pointed stick that you fingernail-challenged folks can use instead.

As you might expect, the mini switches have an OFF side and an ON side:



This is pretty straightforward, but in the interest of making things really clear and easy-to-discern in the rest of this manual, we're going to use color coding to illustrate when switches are on, off, or optional, as follows:

- CYAN (BLUE) = ON
- MAGENTA (PINK) = OPTIONAL
- YELLOW = SELECT ANY
- BLACK = OFF



THESE SWITCHES ARE ON



TURN THESE ON IF YOU WANT TO



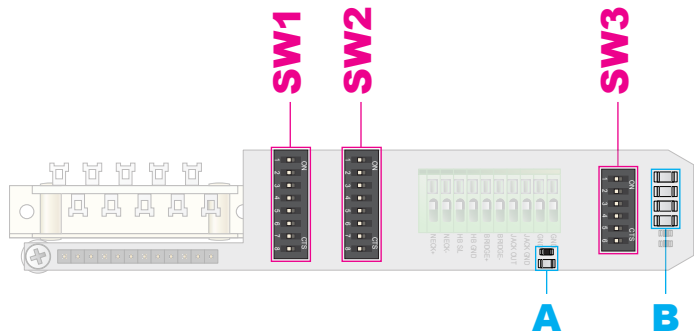
TURN ON AS MANY OF THESE AS YOU WANT (BUT AT LEAST ONE)



MAKE SURE THESE ARE OFF

THE CONTROLS

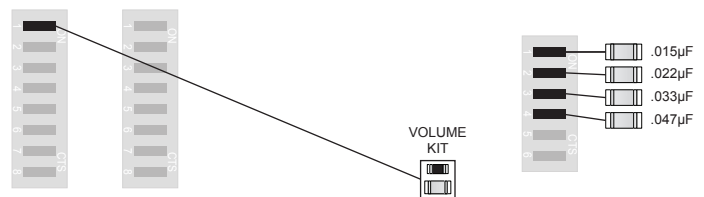
Here's a picture of the ToneShaper:



There are three switches (SW1 - SW3), a volume kit (A), and a bank of tone capacitors (B), which has a .015 μ F, .022 μ F, .033 μ F, and .047 μ F capacitor (μ F means "microfarad").

SW1 and SW2 are used to set up the ToneShaper for use with the various pickup selector switches (3-way, 4-way, or 5-way).

SW3 turns the caps in bank B on and off (see how they're beside each other?), and assigns them to the tone control. You can turn on any one, but you can also turn on more than one. When you add capacitors together in parallel (as we're doing here), their values add. So if you turn on, say, the .022 μ F cap and the .033 μ F cap, you'll have the equivalent of a .055 μ F cap. And turning on the .015 μ F, .022 μ F, and .033 μ F caps will give you the equivalent of a .077 μ F cap. There are in fact 15 possible values that can be achieved by turning on one or more of the four caps, ranging from .015 μ F to .117 μ F.



THE VOLUME KIT

The volume kit is a resistor/capacitor that can be engaged to address the problem of treble roll-off that accompanies rolling back your guitar's volume control. Perhaps you're aware of this. When you roll the volume control down, there is a discernible tonal change that comes along for the ride. This is the case with all vintage Teles, and it's something that many people have never noticed, while it drives other people crazy. The volume kit may be switched on or off at almost any time, it's use is optional. If you check it out then you'll find that the treble roll-off that exists without it really is there, even though you may never have noticed. To engage the volume kit, you'll turn on SW1-1 as shown above.



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THE BILLY MOD

Some people don't like the idea of a volume kit, saying that it brings it's own baggage to the party. There's another way to address the treble roll-off issue that involves having the tone pot receive its signal from the volume pot's output, rather than from the switch. Of course, this makes the tone and volume controls interactive, so this method has its own trade-off. Still, there are many people who swear by this method, so we've incorporated it into the ToneShaper.

By the way, we call this the "billy mod", after Billy Wagner, the killin' (and illin') Tele player who first brought it to our attention.

OUR OPINION

We've put the volume kit under the microscope and find that it's an effective solution to what some consider to be a problem, with no discernible negative consequence. Let's qualify that: no negative consequence that we can discern, though you may hear things that we don't.

In the end, it's all just opinion. Tone is always about opinion, there is no wrong or right. The thinking with the ToneShaper is that we'll provide all of the options so you can try them all and make up your own mind. So please, experiment! People often agonize over these things, reading opinions on forum sites in an attempt to sniff out the prevailing wisdom. Our approach is to make it easy for you to try different things to see what works for you.

Tone is like art: **your opinion is valid**. Listen, learn, have fun, draw your own conclusions.

LET'S GO!

Okay, enough, let's get on with the party. We'll start with 3-way wiring.

**3-Way Switch - Two Single-Coils
No Billy Mod**



See those blue switches? They're on, and the black switches are off. The magenta switch is the volume kit, and you can turn it on if you choose to. And the yellow switches are the caps for the tone control - turn on one or more of them.

Now you have the idea. The ToneShaper is very simple to use, and once you get used to the color codes you'll be able to quickly and easily make any changes you need to.

**3-Way Switch - Two Single-Coils
With Billy Mod**



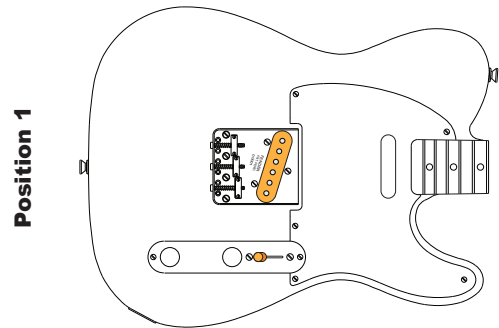
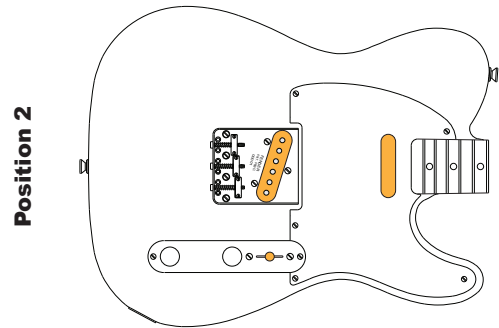
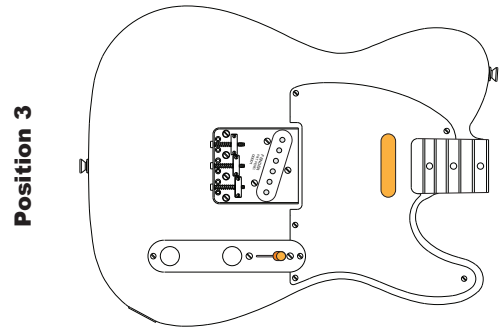
SELECTABLE VOLUME POT VALUE

The volume pot's value has an effect on the overall tonality of the guitar. The common values used in electric guitars are 250k and 500k, and the ToneShaper supports both.

A higher value volume pot will make the guitar sound brighter overall. The effect of going from 250k to 500k pot is fairly subtle, but is discernible. 250k pots are generally used on Telecasters, and if you're using your ToneShaper in a Tele with single coils, you'll likely prefer a 250k volume pot, as 500k might make the guitar sound too thin. But every guitar is different, and you can easily toggle between a 250k value and a 500k value by turning on and off SW3 position 5. In the drawings at left, this switch is shown ON (250k), but merely turning it OFF will increase the overall load that the pickups see from 250k to 500k. You can experiment and see which value you prefer for your guitar.

ACTIVE PICKUPS

The illustrations below will show you the active pickups in each of the switch positions. Active pickups are shown in orange.



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